WHAT IS CLAIMED IS:

1. In a system comprising a network and at least one mobile station (MS) for enabling communications with the at least one MS, the at least one MS having a connection with the network that is capable of becoming a potentially failing connection and the system for executing a rescue procedure for rescuing the potentially failing connection upon detection of the potentially failing connection, a method for computing a mean rescue transmission output power level of a MS having a potentially failing connection, the method comprising:
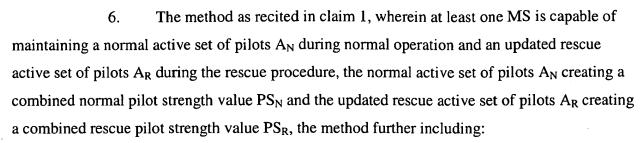
determining a mean rescue receive power level for the MS when the MS begins transmitting during the rescue procedure; and

computing the MS's mean rescue transmission output power level by adding a delta power level to a negative of the mean rescue receive power level, the delta power level inherently including an offset representing open-loop power control.

2. The method as recited in claim 1, wherein the MS's mean rescue transmission output power level is recomputed during execution of the rescue procedure as the MS's mean rescue receive power level changes.

3. The method as recited in claim 1, wherein the delta power level includes a pre-rescue power delta computed by subtracting the MS's mean receive power level from the MS's transmit power level, the MS mean receive power level and the MS transmit power level measured at a time power control bits were received by the MS prior to detection of the potentially failing connection, the pre-rescue power delta including the offset.

4. The method as recited in claim 3, further including multiplying the offset by a coefficient whose value is dependent on and directly proportional to a delay time, the delay time representing a time interval beginning at the time power control bits were received by the MS prior to the detection of the potentially failing connection, and ending at the start of the rescue procedure.

5. The method as recited in claim 4, wherein the coefficient is communicated to the MS in a message prior to the start of the rescue procedure.
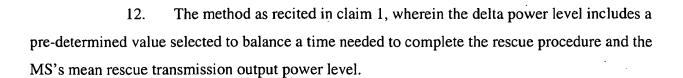
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6.   The method as recited in claim 1, wherein at least one MS is capable of maintaining a normal active set of pilots A_N during normal operation and an updated rescue active set of pilots A_R during the rescue procedure, the normal active set of pilots A_N creating a combined normal pilot strength value PS_N and the updated rescue active set of pilots A_R creating a combined rescue pilot strength value PS_R, the method further including:
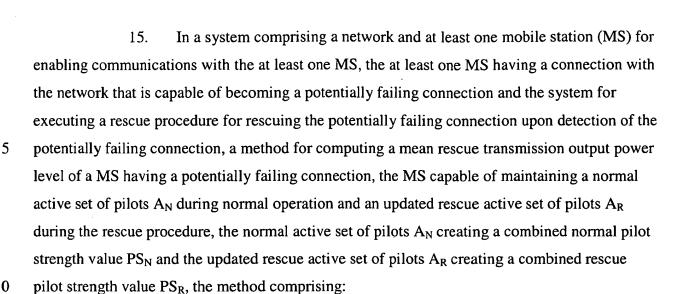
including a rescue interference delta in the delta power level, the rescue interference delta determined by computing a normal active set first interference correction term $IC_N = \min(\max(OFFSET\text{-}PS_N,LO\_IC),HI\_IC)$ and an updated rescue active set second interference correction term $IC_R = \min(\max(OFFSET\text{-}PS_R,LO\_IC),HI\_IC)$, where OFFSET is a highest value in a selected range of PS_N and PS_R values, LO_IC is a lowest value in a selected range of IC_N and IC_R values, and HI_IC is a highest value in the selected range of IC_N and IC_R values, and computing the rescue interference delta as $IC_R - IC_N$.

7.   The method as recited in claim 6, wherein the OFFSET, LO_IC, or HI_IC value is communicated to the MS in a message prior to a start of the rescue procedure.

8.   The method as recited in claim 6, wherein the rescue interference delta and the delta power level are recomputed during execution of the rescue procedure as the updated rescue active set of pilots A_R or the combined rescue pilot strength value PS_R changes.

9.   The method as recited in claim 1, wherein the delta power level includes a rescue delay compensation value that is multiplied by a coefficient that increases as a delay time increases, the delay time representing a time interval beginning at the time power control bits were received by the MS prior to detection of the potentially failing connection, and ending at an end of the rescue procedure.

10.   The method as recited in claim 9, wherein the rescue delay compensation value is recomputed at fixed time intervals during execution of the rescue procedure.

11.   The method as recited in claim 9, wherein the rescue delay compensation value or the coefficient is communicated to the MS in a message prior to a start of the rescue procedure.

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12. The method as recited in claim 1, wherein the delta power level includes a pre-determined value selected to balance a time needed to complete the rescue procedure and the MS's mean rescue transmission output power level.

13. The method as recited in claim 12, wherein the pre-determined value is communicated to the MS in a message prior to a start of the rescue procedure.

14. The method as recited in claim 12, wherein the pre-determined value includes the offset.

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15.   In a system comprising a network and at least one mobile station (MS) for enabling communications with the at least one MS, the at least one MS having a connection with the network that is capable of becoming a potentially failing connection and the system for executing a rescue procedure for rescuing the potentially failing connection upon detection of the potentially failing connection, a method for computing a mean rescue transmission output power level of a MS having a potentially failing connection, the MS capable of maintaining a normal active set of pilots A_N during normal operation and an updated rescue active set of pilots A_R during the rescue procedure, the normal active set of pilots A_N creating a combined normal pilot strength value PS_N and the updated rescue active set of pilots A_R creating a combined rescue pilot strength value PS_R, the method comprising:

determining a mean rescue receive power level for the MS when the MS begins transmitting during the rescue procedure; and

computing the MS's mean rescue transmission output power level by adding a delta power level to a negative of the mean rescue receive power level, the delta power level inherently including an offset representing open-loop power control;

wherein the delta power level includes contributions from one or more of four parameters, the four parameters comprising

a pre-rescue power delta computed by subtracting the MS's mean receive power level from the MS's transmit power level, the MS mean receive power level and the MS transmit power level measured at a time power control bits were received by the MS prior to detection of the potentially failing connection, the pre-rescue power delta including the offset,

a rescue interference delta computed by determining a normal active set first interference correction term $IC_N = min(max(OFFSET-PS_N,LO\_IC),HI\_IC)$ and an updated rescue active set second interference correction term $IC_R = min(max(OFFSET-PS_R,LO\_IC),HI\_IC)$, where OFFSET is a highest value in a selected range of PS_N and PS_R values, LO_IC is a lowest value in a selected range of IC_N and IC_R values, and HI_IC is a highest value in the selected range of IC_N and IC_R values, and computing the rescue interference delta as $IC_R - IC_N$,

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a rescue delay compensation value that is multiplied by a

coefficient that increases as a delay time increases, the delay time representing a time interval

beginning at the time power control bits were received by the MS prior to detection of the

potentially failing connection, and ending at an end of the rescue procedure, and

5   a pre-determined value selected to balance a time needed to

complete the rescue procedure and the MS's mean rescue transmission output power level.

    16.   The method as recited in claim 15, wherein one or more of the four

parameters are recomputed during execution of the rescue procedure.

    17.   The method as recited in claim 15, wherein one or more of the four

10 parameters not previously contributing to the delta power level are subsequently included in the

delta power level during execution of the rescue procedure.

    18.   The method as recited in claim 15, wherein one or more of the four

parameters previously contributing to the delta power level are subsequently removed from the

delta power level computation during execution of the rescue procedure.

15   19.   In a system comprising a network and at least one mobile station (MS) for

enabling communications with the at least one MS, the at least one MS having a connection with

the network that is capable of becoming a potentially failing connection and the system for

executing a rescue procedure for rescuing the potentially failing connection upon detection of the

potentially failing connection, a method for computing a mean rescue transmission output power

20 level of a MS having a potentially failing connection, the method comprising:

          a step for determining a mean rescue receive power level for the MS when

the MS begins transmitting during the rescue procedure; and

          a step for computing the MS's mean rescue transmission output power

level by adding a delta power level to a negative of the mean rescue receive power level, the

25 delta power level inherently including an offset representing open-loop power control.

20.   A mobile station (MS) for communicating with a network and for assisting in rescuing the MS when the MS has a connection with the network that has become a potentially failing connection by executing a rescue procedure and transmitting on a reverse link at a specified mean rescue transmission output power level, the MS comprising:

5   a MS processor programmed for

determining a mean rescue receive power level for the MS when the MS begins transmitting during the rescue procedure, and

computing the mean rescue transmission output power level for the MS by adding a delta power level to a negative of the mean rescue receive power level, the delta

10   power level inherently including an offset representing open-loop power control.

21.   The MS as recited in claim 20, the MS processor further programmed for recomputing the MS's mean rescue transmission output power level during execution of the rescue procedure as the MS's mean rescue receive power level changes.

22.   The MS as recited in claim 20, the MS processor further programmed for

15   computing and including a pre-rescue power delta in the delta power level, the pre-rescue power delta computed by subtracting the MS's mean receive power level from the MS's transmit power level, the MS mean receive power level and the MS transmit power level measured at a time power control bits were received by the MS prior to detection of the potentially failing connection, the pre-rescue power delta including the offset.

20   23.   The MS as recited in claim 22, the MS processor further programmed for multiplying the offset by a coefficient whose value is dependent on and directly proportional to a delay time, the delay time representing a time interval beginning at the time power control bits were received by the MS prior to the detection of the potentially failing connection, and ending at the start of the rescue procedure.

25   24.   The MS as recited in claim 23, the MS processor further programmed for receiving the coefficient in a message prior to the start of the rescue procedure.

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25. The MS as recited in claim 20, the MS processor further programmed for:

maintaining a normal active set of pilots A_N and measuring a combined normal pilot strength value PS_N from A_N during normal operation, and maintaining an updated rescue active set of pilots A_R and measuring a combined rescue pilot strength value PS_R from A_R during execution of the rescue procedure; and

including a rescue interference delta in the delta power level, the rescue interference delta determined by computing a normal active set first interference correction term $IC_N = min(max(OFFSET-PS_N,LO\_IC),HI\_IC)$ and an updated rescue active set second interference correction term $IC_R = min(max(OFFSET-PS_R,LO\_IC),HI\_IC)$, where OFFSET is a highest value in a selected range of PS_N and PS_R values, LO_IC is a lowest value in a selected range of IC_N and IC_R values, and HI_IC is a highest value in the selected range of IC_N and IC_R values, and computing the rescue interference delta as $IC_R - IC_N$.

26. The MS as recited in claim 25, the MS processor further programmed for receiving the OFFSET, LO_IC, or HI_IC value in a message prior to a start of the rescue procedure.

27. The MS as recited in claim 25, the MS processor further programmed for recomputing the rescue interference delta and the delta power level during execution of the rescue procedure as the updated rescue active set of pilots A_R or the combined rescue pilot strength value PS_R changes.

28. The MS as recited in claim 20, the MS processor further programmed for including a rescue delay compensation value in the delta power level, the rescue delay compensation value multiplied by a coefficient that increases as a delay time increases, the delay time representing a time interval beginning at the time power control bits were received by the MS prior to detection of the potentially failing connection, and ending at an end of the rescue procedure.

29. The MS as recited in claim 28, the MS processor further programmed for recomputing the rescue delay compensation value at fixed time intervals during execution of the rescue procedure.

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30.   The MS as recited in claim 28, the MS processor further programmed for receiving the rescue delay compensation value or the coefficient in a message prior to a start of the rescue procedure.

31.   The MS as recited in claim 20, the MS processor further programmed for including a pre-determined value in the delta power level, the pre-determined value selected to balance a time needed to complete the rescue procedure and the MS's mean rescue transmission output power level.

32.   The MS as recited in claim 31, the MS processor further programmed for receiving the pre-determined value in a message prior to a start of the rescue procedure.

33.   The MS as recited in claim 31, wherein the pre-determined value includes the offset.

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34.   A mobile station (MS) for communicating with a network and for assisting in rescuing the MS when the MS has a connection with the network that has become a potentially failing connection by executing a rescue procedure and transmitting on a reverse link at a specified mean rescue transmission output power level, the MS comprising:

5   a MS processor programmed for

determining a mean rescue receive power level for the MS when the MS begins transmitting during the rescue procedure, and

computing the MS's mean rescue transmission output power level by adding a delta power level to a negative of the mean rescue receive power level, the delta

10   power level inherently including an offset representing open-loop power control;

wherein the MS processor is further programmed for including in the delta power level contributions from one or more of four parameters, the four parameters comprising

a pre-rescue power delta computed by subtracting the MS's mean receive power level from the MS's transmit power level, the MS mean receive power level and

15   the MS transmit power level measured at a time power control bits were received by the MS prior to detection of the potentially failing connection, the pre-rescue power delta including the offset,

a rescue interference delta computed by maintaining a normal active set of pilots A_N and measuring a combined normal pilot strength value PS_N from A_N

20   during normal operation, maintaining an updated rescue active set of pilots A_R and measuring a combined rescue pilot strength value PS_R from A_R during execution of the rescue procedure, determining a normal active set first interference correction term $IC_N = \text{min(max(OFFSET-}PS_N,\text{LO\_IC),HI\_IC)}$ and an updated rescue active set second interference correction term $IC_R = \text{min(max(OFFSET-}PS_R,\text{LO\_IC),HI\_IC)}$, where OFFSET is a highest value in a selected range of

25   PS_N and PS_R values, LO_IC is a lowest value in a selected range of IC_N and IC_R values, and HI_IC is a highest value in the selected range of IC_N and IC_R values, and computing the rescue interference delta as $IC_R - IC_N$,

a rescue delay compensation value that is multiplied by a coefficient that increases as a delay time increases, the delay time representing a time interval

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beginning at the time power control bits were received by the MS prior to detection of the potentially failing connection, and ending at an end of the rescue procedure, and

a pre-determined value selected to balance a time needed to complete the rescue procedure and the MS's mean rescue transmission output power level.

5   35.   The MS as recited in claim 34, the MS processor further programmed for recomputing one or more of the four parameters during execution of the rescue procedure.

36.   The MS as recited in claim 34, the MS processor further programmed for including one or more of the four parameters not previously contributing to the delta power level in the delta power level computation during execution of the rescue procedure.

10   37.   The MS as recited in claim 34, the MS processor further programmed for removing one or more of the four parameters previously contributing to the delta power level from the delta power level computation during execution of the rescue procedure.

38.   A mobile station (MS) for communicating with a network and for assisting in rescuing the MS when the MS has a connection with the network that has become a
15   potentially failing connection by executing a rescue procedure and transmitting on a reverse link at a specified mean rescue transmission output power level, the MS comprising:

means for determining a mean rescue receive power level for the MS when the MS begins transmitting during the rescue procedure; and

means for computing the MS's mean rescue transmission output power
20   level by adding a delta power level to a negative of the mean rescue receive power level, the delta power level inherently including an offset representing open-loop power control.